

Alcohol and Cigarette Free: Examining Social Influences on Substance Use Abstinence among Black Non-Latina and Latina Urban Adolescent Girls

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Abstract:

Increases in substance use prevalence among girls, as well as a lack of research conducted with urban girls of color, highlight the importance of understanding both predictors and outcomes of substance use abstinence (SUA) within this population. This study addresses gaps in SUA research through a longitudinal investigation conducted with urban black non-Latina and Latina girls (N = 597) as they transitioned through junior high school. Multivariate logistic regressions found social influences (i.e., friend/family use, drug access) to be significantly associated with girls' SUA, although differential associations were found by race/ethnicity. SUA was also associated with positive adjustment and wellness by ninth grade. Implications for gender-specific prevention programming are discussed.

Keywords: adolescents | Black girls | Latina girls | substance use | substance use abstinence | urban

Article:

INTRODUCTION

Drug use, a serious national public health concern, has become increasingly prevalent among adolescent girls. Furthermore, the past two decades have shown a substantial decrease in previously reported gender differences in substance use (CASA, 2006; Guthrie & Low, 2000; Johnston, O'Malley, & Bachman, 2004). With changes in prevalence among girls, health problems associated with substance use are also increasing among women and their children (CASA, 2006; Greenfield, 2002; Guthrie & Low, 2000). Of particular importance is the relationship between substance use and risky sexual behavior among girls and the associated

increase in risk for HIV from these behaviors (Anderson & Mueller, 2008; Cook & Clark, 2005). Substance use has clearly become one of the most important public health concerns for women.

To date a fairly extensive literature exists on risk and protective factors for substance use among adolescents, and effective drug prevention programs are modeled on these factors (Botvin, 2000). However, relatively less work has been conducted in adolescents who do not use illicit substances. By concentrating solely on the etiology of use, we may be missing an opportunity to learn from youth who abstain from substance use during the transitional developmental stage of adolescence.

While little research has been conducted on substance use abstinence (SUA), earlier research on the topic suggested that experimenting with substance use during adolescence was a normative expression of the developmental stage of adolescence (Shelder & Block, 1990). This research proposed that youth who did not experiment with substances during adolescence were not exhibiting normative developmental behavior and may not be as well adjusted as experimenting youth (Shelder & Block, 1990). However, investigators have begun to demonstrate that youth who abstain from illicit substances exhibit more adaptive outcomes than their peers who use or experiment with substances (Clinton-Sherrod, Sobeck, Abbey, Agius, & Terry, 2005; Topolski et al., 2001; Tucker, Ellickson, Collins, & Klein, 2006). In a study by Tucker and colleagues (2006), participants were grouped by level of substance use from middle school through twelfth grade and a variety of outcomes were assessed at the end of grade 12 and by age 23 years. SUA, whether it was defined as abstinence from marijuana or any other illicit substance from middle school through twelfth grade, or as no lifetime use of cigarettes or illicit drugs and no alcohol use in the past year at twelfth grade, was associated with less participation in deviant behavior, more parental support, better grades, and a greater likelihood of completing college by age 23 (Tucker et al., 2006). A limitation of this study, however, was that it consisted of predominately white youths.

Another study, consisting primarily of African-American youths, examined abstinence of both cigarette and alcohol use from the beginning to the end of sixth grade (Clinton-Sherrod et al., 2005). Results showed abstainers were more likely to have better decision-making skills, higher self-esteem, lower peer pressure susceptibility, and more positive attitudes about school. Additional support for the adaptive quality of abstinence comes from a cross-sectional analysis of health risk behaviors (tobacco use, alcohol use, illicit drug use, and high-risk sexual behavior), among seventh- through twelfth-grade students. Results from this study showed that abstainers scored higher on quality-of-life scores than experimenters and those who often engaged in substance use (Topolski et al., 2001).

While there are many studies of adolescent experimental substance use, there is a paucity of studies that examine outcomes of remaining substance free and abstaining from experimental substance use, particularly during the critical transitional period of early adolescence. Therefore, it is important to examine associations between abstinence and positive outcomes, such as

academic achievement, school bonding, and psychosocial wellness, as well as negative outcomes, such as delinquency. In addition, although previous research has incorporated urban populations of color, there is almost no SUA research that focuses on Latino youth (Martyn, Reifsnider, Barry, Trevino, & Murray, 2006) and no longitudinal studies that focus specifically on adolescents of color. Likewise, none of the mentioned studies have examined gender differences and there are few, if any, studies that focus on SUA among girls.

Previous studies have found drug use among girls of color to be significantly lower than White girls, and African-American girls report the lowest rates of use after Asian girls (Wallace et al., 2003). Substance use rates among Latina girls are not as transparent as those of other racial/ethnic groups. While few studies focus on substance use of Latina girls specifically, there is indication that the majority of Latinas use at lower or equal rates, but not higher rates than their White counterparts (CDC, 2006). Despite the large number of Black non-Latina and Latina girls who are not using substances in early adolescence, when these girls do begin to use the outcomes are typically more devastating than those of their White peers. This is especially true for girls of color residing in environments where contextual adversities, such as poverty, dictate more life-threatening and derailing outcomes as a result of substance use (Chipungu et al., 2000; Dawkins, 1996; Guthrie & Low, 2000; Lopez-Viets, Aarons, Ellingstad, & Brown, 2003). Given these disparities, it is appropriate to begin investigating SUA among urban adolescent girls.

Gender differences found in the etiology of substance use have included a greater susceptibility to social influences, such as friends' and family use, among girls (Charlton & Blair, 1989; Chassin, Presson, Todd, Rose, & Sherman, 1998; Griffin, Botvin, Doyle, Diaz, & Epstein, 1999; Slater, Guthrie, & Boyd, 2001; Waldron, Lye, & Brandon, 1991). However, little work has been focused on substance use etiology among adolescent girls of color specifically. Robinson, Klesges, and Zbikowski (1997) found associations between familial smoking and adolescent experimental smoking was statistically significant for both White girls and Black girls and boys. However, this relationship was considerably stronger for White girls. In another study, Nichols and colleagues (2004) found Black girls to be more influenced by maternal influences to smoke than Latina girls. In a later study social influences were found to significantly predict smoking initiation among urban adolescent girls with few racial/ethnic differences in risk factors (Nichols, Birnbaum, Birnel, & Botvin, 2006). Moreover, Black girls had similar levels of risk factors in spite of significantly lower rates of initiation. Understanding the social factors associated with girls' SUA through the critical early adolescent period will aid in the development of effective gender-appropriate intervention and prevention strategies.

This article examines social factors associated with SUA among urban adolescent girls of color as they transition through junior high school and, as such, addresses gaps in SUA research by conducting a longitudinal analysis of SUA among an understudied population. Three primary issues will be addressed: (1) the extent to which SUA associated with adjustment and wellness at the end of ninth grade; (2) the extent to which social influences predict SUA among Black non-Latina and Latina adolescent girls; and (3) the extent to which race/ethnicity moderate the

relationship between social influences and SUA. We hypothesize the following: (1) Girls who report abstaining from cigarette and alcohol use will demonstrate greater positive adjustment and wellness; (2) Girls who report pro-social influences will demonstrate SUA; and (3) The impact of pro-social influences on SUA will be moderated by race/ethnicity.

METHOD

Procedure

The current study is a secondary analysis of survey data collected as part of a large-scale school-based drug prevention trial. Thirty New York City public and parochial junior high schools were recruited from districts known to have both low socioeconomic status based on the Board of Education's poverty index, and at least 80% to 85% minority students. All seventh-graders in English-speaking, mainstream classes were eligible and approximately 82% participated in the baseline assessment. A passive consent procedure approved by the institution's IRB was used to inform parents about the nature of the study and enable them to disallow their child's participation. The drug prevention trial, designed to test a broad-based competency enhancement approach against an information-only approach to alcohol, tobacco, and substance use prevention, was implemented from 1994 through 1996 and used schools as the unit of randomization and analysis (Botvin, Griffin, Diaz, & Ifill-Williams, 2001). Only data collected from girls in the control condition are used in the current study to avoid confounding with potential intervention effects.

Data collection took place in schools within students' regular classrooms. Questionnaires measured self-reported substance use as well as several cognitive, attitudinal, and psychological characteristics hypothesized to be related to drug use initiation. A team of three to five trained data collectors administered questionnaires following a standardized protocol (Evans, Hansen, & Mittlemark, 1977). Steps were taken to ensure the quality of self-report data. Identification codes rather than names were used to emphasize confidentiality, and carbon monoxide (CO) breath samples were collected using a variation of the bogus pipeline procedure. This procedure involved informing students that they would be individually tested for smoking by assessing the level of CO in their expired air. Students were informed prior to administration of the survey and the procedure was demonstrated to the entire group. Students were then individually summoned to a semi-private location as the survey was being administered. While this measure was used to increase the validity of questions pertaining to cigarette smoking, studies have shown bogus pipeline procedures may increase the validity of other problem behaviors (Tourangeau, Smith, & Rasinski, 2006).

Participants

In the original study 1,136 girls in the control condition completed the baseline survey. Among girls who participated in the control condition, the majority self-identified as Latino/Hispanic (31%, $N = 347$) or Black/African-American (51%, $N = 583$). The remainder of the girls

(18%, $N = 206$) self-identified as Asian, other, white, or American Indian. Participants in the control condition lived with both parents (40%, $N = 453$) or in a single-parent home (38%, $N = 433$). Most girls also attended public school (94%, $N = 1,072$).

Of these 1,136 girls, 734 girls completed surveys in grades 7, 8, and 9. The majority (81%, $N = 597$) of those girls self-identified as either Black non-Latina or Latina. Due to the focus of this study, all girls who identified as a race/ethnicity other than Black non-Latina or Latina were dropped. The current sample consists of 597 Black non-Latina (63%, $N = 373$) and Latina (38%, $N = 224$) adolescent girls who completed self-report surveys at all three time points. Among girls who described themselves as Latina ($N = 224$), the majority described themselves as Dominican (36%) and Puerto Rican (23%). Among girls who described themselves as Black ($N = 373$), the majority (72%) identified as African-American (born in United States) or Caribbean/West Indian (19%). Most of the girls reported living with their mother and father (39%, $N = 233$) or with one of their parents (mother or father 41%, $N = 246$). Of the remaining girls, 10% reported living with their parent and a stepparent; 9% reported an alternative household composition designated as other.

Table 1 shows the differences between girls in the current study and all available Black and Latina girls from the larger study. Differences between the two samples were assessed using chi-square analyses. Attrition from seventh to ninth grade was 36%; 930 Black and Latina girls started the study and 597 completed the survey in the seventh, eighth, and ninth grades. Significant differences were found for household structure ($\chi^2(3) = 21.15, p < .000$): girls who dropped out of the study were less likely to come from two-parent households and more likely to come from households with other family structures. No significant race/ethnicity differences were found between the two samples nor were there any significant differences for drinking. Significant differences were found for smoking ($\chi^2(1) = 9.54, p < .01$): girls who reported smoking at baseline were more likely to drop out of the study than girls who didn't smoke.

TABLE 1 Characteristics of Black and Latina Girls in Parent Study and Current Study

	Parent study (Baseline)	Current study (7th, 8th, & 9th)	Significance
N	930	597	
Race			n.s.
Black	62.7%, $N = 583$	62.5%, $N = 224$	
Latina	37.3%, $N = 347$	37.5%, $N = 373$	
Household Structure			$p < .000$
Both Parents	34.2%, $N = 318$	39.0%, $N = 233$	
Single Parent	43.0%, $N = 400$	41.9%, $N = 250$	
Mother or Father and Stepparent	10.6%, $N = 99$	9.5%, $N = 57$	
Other	11.8%, $N = 110$	9.5%, $N = 57$	
School Type			n.s.

Public	93.7%, N = 871	93.3%, N = 557	
Parochial	6.3%, N = 59	6.7%, N = 40	
Drug Use			
Lifetime Smoking	20.2%, N = 188	17.3%, N = 103	p < .01
Lifetime Drinking	32.3%, N = 300	31.0%, N = 185	n.s.

Measures

Background characteristics including age, race/ethnicity, and household structure were self-reported. For analysis purposes the household structure variable was dichotomized so that 1 = two-parent and 0 = all other household structure options.

SUBSTANCE USE ABSTINENCE

Girls were asked how often they smoked cigarettes and how often they drank beer, wine, wine coolers, or hard liquor. Response options included

1. never,
2. a few times but not in the past year,
3. a few times a year,
4. once a month,
5. a few times a month,
6. once a week,
7. a few times a week,
8. once a day, and
9. more than once a day.

Using both substance use items, a dichotomous abstinence variable was computed, with 1 = no smoking or drinking at any time point and 0 = any smoking or drinking at at least one time point.

Approximately one-third (30%, $N = 179$) of sample girls ($N = 597$) reported remaining abstinent throughout all three time points.

FAMILY'S AND FRIENDS' SUBSTANCE USE

Six items were used to measure family substance use status at baseline. Girls were asked if their mother or stepmother, father or stepfather, or older sibling smoked cigarettes or drank alcohol. Response options included (1) no, (2) used to but quit, (3) yes, and (4) not sure. Items were combined for each family member and then collapsed to create a dichotomous variable representing substance use or non-use for each member. The option "not sure" indicated girls did not perceive their family members as users, and thus was coded as "no use." The option "used to but quit" indicated girls perceived their family members as having used at some point, so it was coded as "use." No option was provided for "have no mother/father/older sibling," and missing data were recoded as "no use" as a proxy for not having the family member in the household. The majority (85%, $N = 505$) of girls reported living with a mother who didn't use drugs, 80% ($N = 478$) reported living with a father who didn't use drugs, and 93% ($N = 556$) reported living with a sibling who didn't use drugs.

At baseline, girls were asked how many of their friends they thought participated in the following behaviors:

- Smoked cigarettes

- Drank beer, wine, or liquor

- Smoked marijuana

- Used cocaine or other hard drugs

- Sniffed glue, paint, gas, or other things to get high

Response options ranged from (1) none to (5) all or almost all for each category of substance. Items were reverse coded and averaged across substance type, so that higher scores represent lower perception of friends' use of substances.

SUBSTANCE USE EXPECTATIONS

At baseline, girls were asked how many adolescents their age (peers) and how many adults they thought participated in the following substance use behaviors:

- Smoked cigarettes
- Drank beer, wine, or liquor
- Smoked marijuana
- Used cocaine or other hard drugs
- Sniffed glue, paint, gas, or other things to get high

Response options ranged from (1) none to (5) all or almost all. Items were reverse coded and averaged across substance type so that higher scores represent lower expectations of peer and adult use of substances.

ACCESS

This scale was derived from Newcomb and Felix-Ortiz (1992). Four items assessed girls' perceptions of how easy it is to access substances at baseline. Girls were asked how easy it was for them to get (1) cigarettes; (2) beer, wine, or liquor; (3) marijuana or hashish; or (4) cocaine or other hard drugs. Response options ranged from (1) very hard to (4) very easy. Items were reverse coded and averaged across substances so that higher scores represent greater difficulty in accessing substances.

WELLNESS/ADJUSTMENT

To assess associations between substance use abstinence and girls' general wellness and social adjustment, several measures from the ninth-grade survey were included. Girls reported the grades they generally receive in school, with response options ranging from (1) Ds or lower to (5) mostly As.

Three items ($\alpha = .56$) were used to assess girls' general perception of their level of diverting from the behaviors expected of them at home and school, and with police. This question asked girls to state how frequently in the past month they got into trouble at home and school, and with police. Response options ranged from (1) never to (5) more than 4 times.

Four items ($\alpha = .78$) from Hawkins, Catalano, and Miller (1992) were used to measure school bonding. This scale consisted of four items which asked youths to report how much they agreed or disagreed with five statements regarding school. Response options included (1) strongly disagree to (5) strongly agree. An example of a school bonding scale item is "Most mornings I look forward to going to school."

Five items ($\alpha = .89$) from Rosenberg's Self-Esteem Scale (1965) were used to assess global self-worth. Response categories ranged from (1) strongly disagree to (5) strongly agree. An example of a Self-Esteem Scale item is "I feel that I am a good person."

Eight items ($\alpha = .91$) from Jessor, Donovan, and Costa (1990) were used to measure perceived life chances. Girls rated their chances of obtaining a number of pro-social outcomes. Some examples of these outcomes included graduating from high school, attaining a well-paying job, and having good friends to count on. Response options ranged from (1) very low to (5) very high.

Eight items ($\alpha = .84$) from Veit and Ware (1983) were used to measure well-being. Girls were asked how often in the past month they experienced certain emotional and physical states. Some examples of these emotional and physical states included feeling cheerful and lighthearted, free of tension, and anxious and worried. Response options ranged from (1) never to (5) always.

The psychometric properties of the measures used in this study have been demonstrated in previous research conducted with samples of predominantly multi-ethnic urban youth in this age group (Epstein, Botvin, Baker, & Diaz, 1999; Epstein, Botvin, & Diaz, 1999; Epstein, Williams, Botvin, Diaz, & Ifill-Williams, 1999; Scheier & Botvin, 1995; Scheier, Botvin, Diaz, & Ifill-Williams, 1997).

Data Analysis

To examine the context of remaining cigarette and alcohol free among adolescent girls, a series of descriptive analyses were run by race/ethnicity, household structure, and social influences. To examine how remaining abstinent from experimental substance use is associated with wellness and adjustment, correlations were run between SUA and adolescent problem behavior variables and well-being variables. Univariate logistic regressions were run for all predictor variables on SUA and correlations were run among predictor variables to test for multicollinearity. A multivariate logistic regression was then run, regressing SUA on all significant predictor variables. Finally, to examine potential differences in associations between social influence variables and SUA for Black and Latina girls, separate multivariate logistic regression models were run by race/ethnicity.

RESULTS

Approximately one-third (30%, $N = 179$) of the girls remained abstinent from cigarette and alcohol use throughout junior high school. Of those girls who lived in two-parent households ($N = 233$), roughly 35% ($N = 82$) remained substance free throughout junior high school. For Black non-Latina girls, about 35% ($N = 130$) remained substance free and for Latina girls 22% ($N = 49$) remained substance free.

We tested for several differences between girls who abstained from any substance use in the seventh, eighth, and ninth grade (abstainers) and girls who reported smoking cigarettes or drinking alcohol at some point in seventh, eighth, or ninth grade (users). Significant differences were found for race/ethnicity and household structure, with abstainers being more likely to live in a two-parent home ($OR = 1.50, CI = 1.05\text{--}2.13; (\chi^2(1) = 4.90, p < .05)$) and more likely to be black ($OR = 1.81, CI = 1.24\text{--}2.64; (\chi^2(1) = 9.92, p < .01)$).

Table 2 shows the results of the Spearman correlations run between the abstinence variable and the wellness/adjustment variables. Substance use abstinence was positively associated with grades, school bonding, and perceived life chances and negatively associated with getting in trouble at school and home, and with police. No significant results were found for well-being or self-esteem.

TABLE 2 Spearman Correlations between Wellness/Adjustment Variables and Drug Use Abstinence

Wellness/Adjustment	Drug use abstinence
Grades	.08* □
Trouble	-.25 □ □
School Bonding	.21 ** □ □
Well-Being	-.09
Self-Esteem	.07
Perceived Life Chances	.14 ** □ □

* $p < .05$. ** $p < .01$.

Univariate analyses were run to assess the relationship between the following variables: normative expectations of peer and adult use, access to drugs, friends and family (i.e., mothers, fathers, and siblings) use, and the abstinence variable. They demonstrated that all of the variables except expectations of adult use were significant and positively associated with abstinence. Lower expectations of peer use ($\chi^2(1) = 15.57; OR = 1.49, CI = 1.22\text{--}1.83$), lower perceptions of friends' use ($\chi^2(1) = 42.67; OR = 3.00, CI = 2.04\text{--}4.42$), higher levels of difficulty in accessing drugs ($\chi^2(1) = 10.55; OR = 1.43, CI = 1.15\text{--}1.79$), and non-use by mothers ($\chi^2(1) = 16.94; OR = 3.29, CI = 1.75\text{--}6.21$), fathers ($\chi^2(1) = 6.01; OR = 1.79, CI = 1.11\text{--}2.89$), and siblings ($\chi^2(1) = 3.86; OR = 2.18, CI = 1.95\text{--}5.01$) were all associated with abstaining from any substance use in junior high school.

Table 3 shows a number of significant associations were found between the predictor variables. Although significant, these associations were weak to moderate in strength, indicating multicollinearity was not an issue and the originally planned multivariate analyses were conducted. The multivariate analyses demonstrate when all variables are entered in the model (i.e., race, household structure, friends use, peer use, access to substances, mother use, father use, and sibling use), expectations of adult and peer use were no longer significant (see Table 4). Black girls were 2.59 times more likely to remain substance free than were Latinas. Likewise,

reporting lower perceptions of friends' and mothers' drug use increased the odds of remaining substance free by three or more times.

TABLE 3 Spearman Correlation of Social Factors Associated with SUA

	1	2	3	4	5	6	7	8	9
1. Race/Ethnicity	—								
2. Household	.17**	□□ —							
3. Friend Use	.04	-.08	—						
4. Peer Norms	-.00	-.03	.40**	□□ —					
5. Adult Norms	.02	.05	.08	.23**	□□ —				
6. Access	-.26**□□	-.06	.21**□□	.33**□□	.06	—			
7. Mother Use	.02	-.07	.14**□□	.17**□□	.06	.01	—		
8. Father Use	.12**□□	.18**□□	.11**□□	.10*□	-.01	.04	.32**□□	—	
9. Sibling Use	.00	.03	.19**□□	.02	.01	.03	.14**□□	.20**□□	—

Note: *p < .05. **p < .01.

TABLE 4 Multivariate Logistic Regression of Social Influences on Substance Use Abstinence

	OR	CI(95%)	
Latina	2.59	1.63	4.13
Two-Parent Household	1.62	1.05	2.50
Friends' Drug Use	3.03	1.93	4.75
Expectations of Peer Use	1.06	.83	1.35
Access to Drugs	1.42	1.10	1.83
Mother's Drug Use	3.00	1.42	6.30
Father's Drug Use	1.64	.92	2.91
Sibling Drug Use	.75	.28	2.00
r ² □		.21	
Model		χ ² (8) = 84.27 N = 524	

*Nagelkerke R Square.

Results of multivariate analyses run separately by race/ethnicity ($\chi^2(7) = 18.82$; $N = 203$; $r^2 = .14$) show that among Latinas, having a lower perception of friend use increased the probability of abstinence ($OR = 3.38$, $CI = 1.38-8.46$). For Black girls, household structure, mothers' use, fathers' use, perception of friends' use, and access to drugs were all significantly predictive of abstinence ($\chi^2(7) = 61.39$; $N = 321$; $r^2 = .24$). Specifically, Black girls were more likely to be abstainers if their mother did not use substances ($OR = 4.95$, $CI = 1.75-13.98$) or if their father did not use substances ($OR = 2.25$, $CI = 1.09-4.68$). These girls were also more likely to be abstainers if they had low perceptions of friends' use ($OR = 2.95$, $CI = 1.76-4.95$),

reported greater difficulty obtaining drugs ($OR = 1.45$, $CI = 1.09-1.94$), and came from a two-parent family ($OR = 1.88$, $CI = 1.08-3.26$).

DISCUSSION

The overarching goal of this study was to examine the relationship between cigarette and alcohol abstinence and those factors that are predictive of SUA within a population of Black non-Latina and Latina adolescent girls residing in a low-income urban community. Results showed that approximately one-third of the girls refrained from cigarette and alcohol use throughout their junior high school years, with greater abstinence reported among Black girls as compared to Latinas. All study hypotheses were confirmed or partially confirmed. Girls who reported abstaining from cigarette and alcohol use demonstrated greater positive adjustment, but not greater overall well-being and self-esteem. Girls who reported pro-social influences demonstrated SUA, and the impact of pro-social influences was moderated by race/ethnicity.

This study examined the role of wellness and adjustment in relation to substance use abstinence. SUA was positively associated with grades, school bonding, and perceived life chances and negatively associated with getting in trouble. These findings demonstrate the critical role of school and future time orientation in remaining substance free and are consistent with previous findings that report abstainers exhibit more positive attitudes about school, receive better grades, exhibit less involvement in trouble, and report greater life satisfaction (Clinton-Sherrod et al., 2005; Topolski et al., 2001; Tucker et al., 2006).

The lack of association between SUA and well-being and self-esteem is an interesting finding and may reflect initial increases in self-esteem and well-being experienced by adolescents who experiment with substance use to appear older and join peer groups. Previous research has found elevated self-esteem among youth engaging in more negative social behaviors (David & Kistner, 2000). Overall, the high proportion of girls who remained substance-use free and the associations between SUA maintained throughout junior high school with positive adjustment at the end of junior high school supports the importance of examining this issue among urban adolescent girls of color.

The study was also conducted to understand potential predictors of SUA within this population, focusing on social influences due to previous studies that have found social influences to be important predictors of experimental drug use for girls (Charlton & Blair, 1989; Chassin et al., 1998; Griffin et al., 1999; Slater et al., 2001). Results indicated that low normative expectations of peer use, difficulty in obtaining drugs, and having fewer friends and family members using drugs were all significantly associated with SUA within this population. While these results make intuitive sense, there is a paucity of work that has demonstrated these findings empirically, and none have been conducted with adolescent girls of color. Previous research has shown that peer and family use are important risk factors for smoking, drinking, and marijuana use (Brook, Brook, Rubenstone, Zhang, & Gerochi, 2006; Duncan, Duncan, & Strycker, 2003;

Kosterman, Hawkins, Guo, Catalano, & Abbott, 2000). However, findings from this study reiterate that it is seemingly equally important that youths are engaged with friends, family, and peers who are not using in order to remain substance free during these critical transition years. These findings are in line with the Social Development Model (Hawkins et al., 1992). According to this model, youths who have strong connections to pro-social, supportive people and environments are less likely to participate in problem behaviors. While studies have shown associations between social influence factors and experimentation with gateway drugs, this study demonstrates the protective nature of social influences on SUA during the critical years of early adolescence.

Multivariate analyses demonstrated that when all social influences were entered into one model, perceptions of adult and peer use were no longer significant. Adult and peer use are more distal influences of exposure than are use by family members and friends. These results may demonstrate that it is not simply the act of being exposed to others who are using or not using substances, but for Black non-Latina and Latina girls it is the relationship with the person that affects SUA. African American and many Latino cultures are described as being interdependent and having cultural values and norms that rely on kinship networks. The role of family and the meaning of family should be further evaluated for SUA among girls.

When multivariate analyses were run separately by race/ethnicity, a different pattern of results emerged. While the above findings hold true for black girls, the only significant predictor of SUA for Latinas was reporting lower perceptions of friends' substance use. The lack of significant associations between family non-use and SUA is surprising in this population, given that the literature suggests the concept of family (*familismo*) is especially important in Latino communities. Sale and colleagues (2005) concluded in their study of alcohol use that family factors were highly linked to alcohol use, particularly among Latinas. However, their study included family factors other than substance use, such as connectedness and supervision, which may be more important to adolescent Latinas than role modeling of use. These findings are consistent with previous research conducted with this population that showed maternal influences, including role modeling, to be stronger predictors of smoking experimentation among Black girls than Latinas (Nichols et al., 2004).

These findings highlight the need for further investigation on the role of social influences among Latina girls. Such findings may be useful in the design of gender- and culture-specific drug prevention intervention programs. Cultural expectations and values around social influences on substance use can differ and may vary in unanticipated ways, making it critical to further examine the role of these social influences on SUA within specific populations in order to plan and implement effective prevention and health promotion programming. For example, if SUA among Latinas is strongly associated with friends' use only, then developing interventions that are based on mother-daughter relationships may not be as effective. However, among Black non-Latina girls it may be important to implement interventions that focus on both families and friends.

This study has several limitations that should be noted. First, there were no items included in the original study to address issues of acculturation or other cultural factors specific to Black and Latina girls. It is difficult to interpret the contradictory findings of family influences among Latinas in their absence. The study also used a proxy measure of socioeconomic status (SES) by asking students what they did for lunch during a school day. Although 70% of the sample reported eating free or reduced lunch, this does not indicate the number of students eligible for free or reduced lunch. Previous research (Nichols, Birnbaum, Bryant, & Botvin, 2008) has shown associations between reporting free or reduced lunch and problem behaviors, but this does not represent associations between class status and drug use. Therefore, it was not possible to examine differences in SES in the current study. The study also suffers from a high attrition loss (36%) and differences were found by attrition, with smokers being more likely to drop from the study, thereby limiting the generalizability of the study.

Despite these limitations, the study has several unique strengths, including the use of an underrepresented population—urban girls of color—and the focus on predictors of substance use abstinence. Given changes in girls' substance use over time and differences in experiences of substance use and opportunities to engage in substance use by gender, researchers have begun to identify the need for gender-specific interventions (Blake, Amaro, Schwartz, & Flinchbaugh, 2001; Guthrie & Low, 2000). Within gender-specific approaches there is also a recognized need for more ethnically/culturally sensitive approaches to account for differences among girls (Guthrie & Low, 2000). In particular, there is a dearth of programming designed specifically for Latina girls (Martyn et al., 2006). The current study highlights the need for additional research focused on Latina girls.

Low-income, urban communities are often attributed the expectation of risk and developmental challenges; however, there is very little work that is ascribed to understanding positive development and outcomes within contextually “risk”-laden environments. By examining SUA in a group of predominately low-income urban Black non-Latina and Latina girls, findings from this study can contribute to the development of gender-specific interventions for the prevention of substance use among adolescent girls of color.

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REFERENCES

1. Anderson , J. E. , & Mueller , T. E. (2008). Trends in sexual risk behavior and unprotected sex among high school students, 1991–2005: The role of substance use . *Journal of School Health* , 78 , 575 – 580 .

2. Blake , S. M. , Amaro , H. , Schwartz , P. M. , & Flinchbaugh , L. J. (2001). A review of substance abuse prevention interventions for young adolescent girls. *The Journal of Early Adolescence* , 21, 294–324.
3. Botvin , G. J. (2000). Preventing drug abuse in schools: Social and competence enhancement approaches targeting individual-level etiologic factors . *Addictive Behaviors* , 25 , 887 – 897 .
4. Botvin , G. J. , Griffin , K. W. , Diaz , T. , & Ifill-Williams , M. (2001). Drug abuse prevention among minority adolescents: Posttest and one-year follow-up of a school-based preventive intervention . *Prevention Science* , 2 , 1 – 13 .
5. Brook , D. W. , Brook , J. S. , Rubenstone , E. , Zhang , C. , & Gerochi , C. (2006). Cigarette smoking in the adolescent children of drug-abusing fathers . *Pediatrics* , 117 , 1339 – 1347 .
6. Center on Addiction and Substance Abuse at Columbia University (CASA). (2006). *The formative years: Pathways to substance abuse among girls and young women ages* (pp. 8 – 22). New York , NY : Author .
7. Centers for Disease Control and Prevention . (2006). *Youth risk behavior surveillance—United States, 2005*. (Report No. SS-5). Atlanta, GA: U.S. Department of Health and Human Services.
8. Charlton , A. , & Blair , V. (1989). Predicting the onset of smoking in boys and girls . *Social Science & Medicine* , 29 , 813 – 818 .
9. Chassin , L. , Presson , C. C. , Todd , M. , Rose , J. S. , & Sherman , S. J. (1998). Maternal socialization of adolescent smoking: The intergenerational transmission of parenting and smoking . *Developmental Psychology* , 34 , 1189 – 1201 .
10. Chipungu , S. S. , Hermann , J. , Sambrano , S. , Nistler , M. , Sale , E. , & Springer , J. F. (2000). Prevention programming for African American youth: A review of strategies in CSAP's national cross-site evaluation of high-risk youth programs . *Journal of Black Psychology* , 26 , 360 – 385 .
11. Clinton-Sherrod , M. , Sobeck , J. , Abbey , A. , Agius , E. , & Terry , K. (2005). The role of psychosocial factors in transition to substance use: Are they protective among urban minority adolescents? *The Journal of Primary Prevention* , 26 , 511 – 528 .
12. Cook , R. L. , & Clark , D. B. (2005). Is there an association between alcohol consumption and sexually transmitted diseases? A systematic review . *Sexually Transmitted Diseases* , 32 , 156 – 164 .
13. David , C. F. , & Kistner , J. A. (2000). Do positive self-perceptions have a “dark side”? Examination of links between perceptual bias and aggression . *Journal of Abnormal Child Psychology* , 28 , 327 – 337 .

- 14.** Dawkins , M. P. (1996). The social context of substance use among African American youth: Rural, urban, and suburban . *Journal of Alcohol & Drug Education* , 41 , 68 – 85 .
- 15.** Duncan , S. C. , Duncan , T. E. , & Strycker , L. A. (2003). Family influences on youth alcohol use: A multiple-sample analysis by ethnicity and gender . *Journal of Ethnicity in Substance Abuse* , 2 , 17 – 33 .
- 16.** Epstein , J. A. , Botvin , G. J. , Baker , E. , & Diaz , T. (1999). Impact of social influences and problem behavior on alcohol use among inner-city Hispanic and black adolescents . *Journal of Studies on Alcohol* , 60 , 595 – 604 .
- 17.** Epstein , J. A. , Botvin , G. J. , & Diaz , T. (1999). Social influence and psychological determinants of smoking among inner-city adolescents. *Journal of Child and Adolescent Substance Use* , 8, 1–19.
- 18.** Epstein , J. A. , Williams , C. , Botvin , G. J. , Diaz , T. , & Ifill-Williams , M. (1999). Psychosocial predictors of cigarette smoking among adolescents living in public housing developments . *Tobacco Control* , 8 , 45 – 52 .
- 19.** Evans , R. I. , Hansen , W. B. , & Mittlemark , M. B. (1977). Increasing the validity of self-reports of smoking behavior in children . *Journal of Applied Psychology* , 62 (4) , 521 – 523 .
- 20.** Greenfield , S. F. (2002). Women and alcohol use disorders . *Harvard Review of Psychiatry* , 10 , 76 – 85 .
- 21.** Griffin , K. W. , Botvin , G. J. , Doyle , M. M. , Diaz , T. , & Epstein , J. A. (1999). A six-year follow-up study of determinants of heavy cigarette smoking among high-school seniors . *Journal of Behavioral Medicine* , 22 , 271 – 284 .
- 22.** Guthrie , B. J. , & Low , L. K. (2000). A substance use prevention framework: Considering the social context for African American girls . *Public Health Nursing* , 17 , 363 – 373 .
- 23.** Hawkins , J. D. , Catalano , R. F. , & Miller , J. Y. (1992). Risk and protective factors for alcohol and other drug problems in adolescence and early adulthood: Implications for substance abuse prevention . *Psychological Bulletin* , 112 , 64 – 105 .
- 24.** Jessor , R. , Donovan , J. E. , & Costa , F. (1990). Personality, perceived life chances, and adolescent health behavior . In K. Hullerman & F. Losel (Eds.), *Health hazards in adolescence* (pp. 25 – 42). New York , NY : Walter de Gruyter .
- 25.** Johnston , L. D. , O'Malley , P. M. , & Bachman , J. G. (2004). *National survey results on drug use from the Monitoring the Future Study, 1975–2003, Vol. I: Secondary school students*. Bethesda , MD : National Institute on Drug Abuse .

26. Kosterman , R. , Hawkins , J. D. , Guo , J. , Catalano , R. F. , & Abbott , R. D. (2000). The dynamics of alcohol and marijuana initiation: Patterns and predictors of first use in adolescence . *American Journal of Public Health* , 90 , 360 – 366 .
27. Lopez-Viets , V. C. , Aarons , G. A. , Ellingstad , T. P. , & Brown , S. A. (2003). Race and ethnic differences in attempts to cut down or quit substance use in high school sample . *Journal of Ethnicity in Substance Abuse* , 2 , 83 – 103 .
28. Martyn , K. K. , Reifsnider , E. , Barry , M. G. , Trevino , M. B. , & Murray , A. (2006). Protective processes of Latina adolescents . *Hispanic Health Care International* , 4 , 111 – 124 .
29. Newcomb , M. D. , & Felix-Ortiz , M. (1992). Multiple protective and risk factors for drug use and abuse: Cross-sectional and prospective findings . *Journal of Personality and Social Psychology* , 63 , 280 – 296 .
30. Nichols , T. R. , Birnbaum , A. S. , Birnel , S. , & Botvin , G. J. (2006). Perceived smoking environment and smoking initiation among multi-ethnic urban girls . *Journal of Adolescent Health* , 38 , 369 – 375 .
31. Nichols , T. R. , Birnbaum , A. S. , Bryant , K. , & Botvin , G. J. (2008). Lunchtime practices and problem behaviors among multiethnic urban youth . *Health Education & Behavior* , 36 , 570 – 582 .
32. Nichols , T. R. , Graber , J. A. , Brooks-Gunn , J. , & Botvin , G. J. (2004). Maternal influences on smoking initiation among urban adolescent girls . *Journal of Research on Adolescence* , 14 , 73 – 79 .
33. Robinson , L. A. , Klesges , R. C. , & Zbikowski , S. M. (1997). Predictors of risk for different stages of adolescent smoking in a biracial sample. *Journal of Consulting and Clinical Psychology* , 4, 653–662.
34. Rosenberg , M. (1965). *Society and the adolescent self-image* . Princeton , NJ : Princeton University Press .
35. Sale , E. , Sambrano , S. , Springer , J. F. , Pena , C. , Pan , W. , & Kasim , R. (2005). Family protection and prevention of alcohol use among Hispanic youth at high risk . *American Journal of Community Psychology* , 36 , 195 – 205 .
36. Scheier , L. M. , & Botvin , G. J. (1995). Effects of early adolescent drug use on cognitive efficacy in early-late adolescence: A developmental structural model . *Journal of Substance Abuse* , 7 (4) , 379 – 404 .
37. Scheier , L. M. , Botvin , G. J. , Diaz , T. , & Ifill-Williams , M. (1997). Ethnic identity as a moderator of psychosocial risk and adolescent alcohol and marijuana use: Concurrent and longitudinal analyses . *Journal of Child and Adolescent Substance Use* , 6 (1) , 21 – 48 .

38. Shelder , J. , & Block , J. (1990). Adolescent drug use and psychological health . *American Psychologist* , 45 (5), 612 – 630 .
39. Slater , J. M. , Guthrie , B. J. , & Boyd , C. J. (2001). A feminist theoretical approach to understanding the health of adolescent females . *Journal of Adolescent Health* , 28 , 443 – 449 .
40. Topolski , T. D. , Patrick , D. L. , Edwards , T. C. , Huebner , C. E. , Connell , F. A. , & Mount , K. K. (2001). Quality of life and health-risk behaviors among adolescents . *Journal of Adolescent Health* , 29 , 426 – 435 .
41. Tourangeau , R. , Smith , T. W. , & Rasinski , K. A. (2006). Motivation to report sensitive behaviors on surveys: Evidence from a bogus pipeline experiment . *Journal of Applied Social Psychology* , 27 , 209 – 222 .
42. Tucker , J. S. , Ellickson , P. L. , Collins , R. L. , & Klein , D. J. (2006). Are drug experimenters better adjusted than abstainers and users?: A longitudinal study of adolescent marijuana use . *The Journal of Adolescent Health* , 39 , 488 – 494 .
43. Veit , C. T. , & Ware , J. E. (1983). The structure of psychological distress and well-being in general populations . *Journal of Consulting and Clinical Psychology* , 51 , 730 – 742 .
44. Waldron , I. , Lye , D. , & Brandon , A. (1991). Gender differences in teenage smoking . *Women & Health* , 17 , 65 – 90 .
45. Wallace , J. M. , Bachma , J. G. , O'Malley , P. M. , Schulenberg , J. E. , Cooper , S. M. , & Johnston , L. D. (2003). Gender and ethnic differences in smoking, drinking and illicit drug use among American 8th, 10th and 12th grade students, 1976–2000 . *Addiction* , 98 , 225 – 234 .